1. What are the three parts of an industrial pushbutton?

2. What color legend plate is typically used for an emergency stop application?

3. What color legend plate is typically used for a reset function?

4. What are some different types of pushbutton operators?

5. What is the main advantage of the half-shrouded pushbutton over the flush pushbutton?

6. What contacts are normally included on a pushbutton contact block?

7. Which NEMA enclosure type is suitable for Class I locations?

8. What is the main difference between a pushbutton and a selector switch?

9. What is one application of a two position selector switch?

10. What does the three position selector switch typically add to the control?

11. What is indicated by a truth table?

12. What is indicated by an “X” in a truth table?

13. What is one advantage of using a joystick?

14. What is the term used to describe a mechanical switch that requires physical contact of
the object with the switch actuator?

15. What are some common applications of a limit switch?

16. What is the advantage of a “snap-acting” switch?

17. What is the result of not maintaining proper polarity between the NO and the NC contacts
of a limit switch?
18. Which part of a limit switch transfers the mechanical force of the moving part to the contacts?

19. When is a fork lever actuator typically used?

20. Which actuator operates from direct force into the switch with limited travel?

21. What movement of a wobble stick operator will cause it to operate?

22. What are the four terms of travel for a limit switch?

23. What is the advantage of having a tapered cam to operate limit switch contacts?

24. What precaution must be taken with push-roller actuators more than the other types?

25. What are some applications for a foot switch?

26. What is the term used to describe force exerted over a surface divided by the area?

27. What are three types of pressure that can activate a pressure switch?

28. What type of contact is typically used to maintain a pressure in a system?

29. What type of sensing device is typically used in high-pressure sensing applications?

30. Which pressure sensing device has folds that expand and contract as pressure changes?

31. What is the term used to describe the amount of pressure that must be removed after a switch activates until it resets?

32. Where is deadband at its maximum value?

33. What is the advantage of deadband?

34. What is the main problem with a pressure switch that has a large deadband?

35. What type of temperature switch is typically used with heating systems?

36. What type of temperature switch is typically used with heating systems?

37. What is typically controlled by the thermostat in a cooling system?

38. What type of switch would be used to sound an alarm if a sprinkler system activates?
39. What are 2 methods to detect fluid flowing?

40. How is the paddle switch adjusted for different rates of flow?

41. What is the first indication of ice forming on the coils in a refrigeration unit?

42. What is the result of insufficient air flow over heating elements in a duct system?

43. Which switch type is affected by turbulence, corrosiveness, density, and physical state?

44. What is one limitation of mechanical level switches?

45. What are some of the most common types of mechanical level switches?

46. What characteristic must a liquid have if a conductive probe level switch is to be used?

47. How many probes are required for a Conductive probe level switch to detect a liquid at different heights if a non-conductive tank is used?

48. What is dielectric variation?

49. What is the best sensor to detect products such as plastic granules, shredded paper, toner and powders?

50. What is the principle of the optical level switch?

51. Which type of contact is typically used with a discharging tank system?

52. What is the main advantage of two-level control for a system?


54. What type of loads are the most destructive to contacts when switched?

55. What is the result of the large induced voltage being present when switching inductive loads?

56. What device is installed in a circuit to help protect the contacts when switching DC circuits?
57. What device is installed in the circuit to help protect the contacts when switching AC circuits?

58. How is a pressure switch protected from over pressure?

59. What is the minimum distance for straight pipe on either side of a 2” flow switch?

Next 5 Questions 4th Edition Only

60. What electronic device is typically used to switch AC circuits?

61. What electronic device is typically used to switch high-power DC circuits?

62. What device is used to test an electromechanical switch?

63. What device is used to test a solid-state switch?

64. What is the main advantage of smart input devices?

Chapter 16 (4th Edition)

Chapter 21 & 24 (5th Edition)

1. What is the main advantage of photoelectric sensors over proximity and ultrasonic sensors?

2. What are the two main parts of a photoelectric sensor?

3. What are some factors that determine the best scanning technique?

4. Which scan technique works well in heavy dust areas and for distances up to 100’’?

5. Which scan technique is best suited to areas of high vibration and where sensing is only possible from one side?

6. Which scan technique uses a filter so the light is projected in one plane only?
7. Which scan technique uses a transmitter and receiver mounted at equal angles from a reflective surface?

8. Which scan technique utilizes the emitted, reflected light is received?

9. Which scan technique focuses the light beam to a fixed point in front of a photoreceiver?

10. What are some of the advantages of POF (plastic optical fiber) cables?

11. What is one disadvantage of POF over glass optical fiber?

12. What is one advantage of modulated light for a sensor?

13. What is one advantage of unmodulated light?

14. What is the term used to describe the number of items a controller can detect in a second?

15. How is the sensitivity of photoelectric and proximity sensors changed?

16. What is a “dark operated” photoelectric control?


17. Which sensor operates by monitoring high-frequency sound waves?

18. Which output from an ultrasonic diffuse mode sensor would be used to operate a light that glows with intensity proportional to the target distance from the sensor?

19. Which proximity sensor uses eddy currents to sense an object?

20. Which proximity sensor is best suited to measure plastic targets?

21. What property of a material will affect it being detected with a capacitive proximity sensor?

22. What are the different types of hall effect sensor actuation?

23. What are some applications of a hall effect sensor?

24. What are some advantages of a flow detection sensor?
25. What sensor produces heat and produces a current based on whether the heat is carried away from the head or not?

26. What are the main types of outputs for solid-state switching of AC and DC current?

27. What are some of the considerations when determining the type of output switching device?

28. What is the typical amperage rating of solid-state sensors?

29. What is the typical operating current of solid-state sensors?

30. How is the operating current (solid-state sensors) kept from negatively affecting high-impedance loads such as PLCs?

31. What is holding current for an electronic sensor?

32. What is the generally accepted rule for the maximum number of solid-state sensors that may be connected in series or parallel?

33. What is the difference between sinking and sourcing current for a load?

34. Interference for proximity sensors can come from what two sources?

35. What is the basic rule for distance between sensors when mounting flush inductive and capacitive proximity sensors?

36. What is the basic rule for distance between sensors when mounting non-flush inductive and capacitive proximity sensors?

37. What is the basic rule for distance between sensors when mounting inductive and capacitive proximity sensors opposite each other?

38. What is the “Effective light beam” for a photoelectric sensor?

39. Which component of a photoelectric transmitter and receiver should be mounted on the end where the most dirt and debris is in the air?
40. What is a “Load-powered switch”?

41. What are some high-impedance loads?

42. What is the first test when checking a faulty two-wire, solid-state switch?

43. Does the operating current of a three-wire, solid-state switch flow through the switch?

44. What device is used to prevent reverse polarity when connecting three-wire, solid-state switches in parallel?

45. How is the diode connected in a circuit to prevent damage to contacts when switching inductive loads?